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ABSTRACT

With the large-scale movement of middle-class Blacks to the suburbs over the last two decades, the enrollment of Blacks in suburban public and private schools has risen sharply. Using the Black population of Dallas as a target group, the effect of neighborhood attributes and changing family and urban characteristics on the destinations of Blacks who moved was investigated. Analysis of data about the social characteristics of families that moved or migrated to various neighborhoods in Dallas County over the 1965-70 period (income, sex and age of household head, 1965 residence, race, number of children, number of workers) and about neighborhood characteristics (journey to work, tax rate, crime rate, neighborhood race, housing availability, social class, housing price) led to the following major findings: (1) Like their White counterparts, middle-class Blacks select residential neighborhoods that are oriented to their workplace, and (2) Race is very influential: Blacks are repelled by predominantly White neighborhoods and attracted to predominantly Black neighborhoods. Because Dallas, in the late 1960s, was exceptionally impoverished and segregated, the inferences to be drawn from this study may be biased. But casual observation of the District of Columbia reinforces the strongest implication: that Black suburbanization results not in the dispersal of the Black population but in the creation of Black suburbs. (KH)

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Discussion Paper #17

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BLACK FLIGHT: THE MIDDLE CLASS BLACK REACTION TO SCHOOL INTEGRATION AND METROPOLITAN CHANGE

Martin T. Katzman and Harold Childs*

There has been a significant, but barely noticed, exodus of black children from the public schools of our central cities in the 1970s. The magnitude of this exodus, to suburban and private schools, is such that "black flight" aptly describes the phenomenon. What are the causes, consequences, and policy implications of black flight? How is it related to white flight, if at all? How are both related to more profound demographic changes facing school systems, the rapid decline in the school-age population, and the revival of small towns and rural areas?

The purpose of this research is to examine the sharp rise in enrollment of blacks in suburban and private schools, largely a middle-class phenomenon. First, the magnitude of black flight is documented for several metropolitan areas throughout the country. Second, a conceptual scheme for understanding and predicting black flight is presented. Third, trends in social class segregation and suburbanization within the black population are examined. Fourth, the model of black flight and neighborhood change is tested in Dallas.

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I. MAGNITUDE OF BLACK FLIGHT

A Census Bureau news release of December 1, 1978 uncovered a striking new phenomenon: "The number of blacks living in suburbs increased by 34 percent between 1970 and 1977, although those in suburbs still represent only 25 percent of the black metropolitan population, and only 6 percent of the Nation's suburban population....Black migration to the suburbs accelerated between 1975 and 1977 and accounts for 14 percent of the net increase in suburban population attributable to migration, compared with only 7 percent in 1970-75...."

For the first time, the rate of black suburbanization exceeds that of white suburbanization, and consequently the black proportion of suburban areas as a whole is rising (Table 1). Furthermore, blacks are participating with whites in the return to small towns and rural areas. For both groups, the growth rates in nonmetropolitan areas exceeded that in metropolitan areas. Much of this nonmetropolitan growth occured in exurban and small urban areas that have been designated metropolitan since 1970. While black populations in central cities continue to grow (in constrast to white), urban growth rates are lowest in the larger metropolitan areas (of 1 million or more) and below those of nonmetropolitan areas. The evidence of a black population redistribution away from the central cities is unmistakable.

Black flight from urban schools

These trends are to a large extent applicable to the black school-age population.

From all indications, there has been a rapid increase in the proportion of black children enrolled in suburban and private schools. While a definitive statement awaits further research, the following trends are apparent:

Table 1: Population, by Race and Type of Residence: 1977 and 1970

(Numbers in thousands. 1970 metropolitan area definition)

Race and type of residence	1977	1970	Numerical change 1970 to 1977	Percent change 1970 to 1977	Percent distribution	
					1977	1970
WHITE						
United States	184,335	175,276	9,059	5.2	100.0	100.0
Metropolitan areas	122,177	118,938	3,239	2.7	66.3	67.9
Central cities	44,951	48,909	-3,958	-8.1	24.4	27.9
Suburban areas	77,226	70,029	7,197	10.3	41.9	40.0
Metropolitan areas of 1 million or more	68,674	67,721	953	1.4	37.3	38.6
Central cities	21,939	25,007	-3,068	-12.3	11.9	14.3
Suburban areas	46,735	42,714	4,021	9.4	25.4	24.4
Metropolitan areas of less than 1 million	53,503	51,217	2,286	4.5	29.0	29.2
Central cities	23,012	23,903	-891	-3.7	12.5	13.6
Suburban areas	30,491	27,315	3,176	11.6	16.5	15.6
Nonmetropolitan areas	62,158	56,338	5,820	10.3	33.7	32.1
Counties designated metropolitan since 1970	9,064	7,685	1,379	17.9	4.9	4.4
Other nonmetropolitan counties	53,094	48,653	4,441	9.1	28.8	27.8
BLACK						
United States	24,474	22,056	2,418	11.0	100.0	100.0
Metropolitan areas	18,048	16,342	1,706	10.4	73.7	74.1
Central cities	13,451	12,909	542	4.2	55.0	58.5
Suburban areas	4,596	3,433	1,163	33.9	18.8	15.6
Metropolitan areas of 1 million or more	11,819	10,715	1,104	10.3	48.3	48.6
Central cities	8,863	8,664	199	2.3	36.2	39.3
Suburban areas	2,956	2,051	905	44.1	12.1	9.3
Metropolitan areas of less than 1 million	6,228	5,628	600	10.7	25.4	25.5
Central cities	4,588	4,245	343	8.1	18.7	19.2
Suburban areas	1,640	1,383	257	18.6	6.7	6.3
Nonmetropolitan areas	6,427	5,714	713	12.5	26.3	25.9
Counties designated metropolitan since 1970	874	647	227	35.1	3.6	2.9
Other nonmetropolitan counties	5,553	5,067	486	9.6	22.7	23.0

Source: Census Bureau, Social and Economic Characteristics of the Metropolitan and Nonmetropolitan Population: 1977 and 1970, Series P-23, No. 75 (U.S. Government Printing Office, 1978).

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1) in the period 1968-1976, the rate of growth of black enrollment in public elementary and secondary schools has risen faster in the suburbs than in the central cities;

2) since 1970, black enrollment in Catholic and independent private schools have been increasing while white enrollments are decreasing or stable.

Suburban public school enrollments

The best source of information of public school enrollment is the Directory of Public Elementary and Secondary Enrollment compiled by the Office of Civil Rights of the Department of Health, Education, and Welfare. This compendium indicates the race of students in each school within a district that receives Federal funds, and has been the major data source for students of white flight (Coleman et al., 1975; Rossell, 1975 & 1976; Farley, 1976; Armor, 1978).

Black and white enrollments for central city and suburban school districts were calculated from the Directories for the school years beginning in 1968, 1972, and 1976. For purposes of this pilot study six Standard Metropolitan Statistical Areas were selected as representative of different areas of the nation: Atlanta, Cleveland, Dallas, Denver, Oklahoma City, and Washington, D.C.

In all six metropolitan areas, the following generalizations hold for the period 1968-76: 1) white enrollments fell absolutely and as a proportion of metropolitan enrollment in all central city school districts; 2) white public school enrollment in the entire metropolitan area failed to grow, and fell in all but Dallas; 3) suburban black enrollment in the suburbs grew absolutely, relatively to metropolitan black enrollment, and relatively to suburban white enrollment. Together

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these trends indicate an increasing proportion of blacks in both central city and suburban schools (Table 2).

Furthermore, there are some interesting differences between growing and declining areas. In Dallas for example, black enrollments continue to rise absolutely in the central cities and total white enrollments tend to rise slightly in the entire metropolitan area. In Cleveland, on the other hand, black enrollments are decreasing in the central cities, while white enrollments are decreasing in the suburbs, albeit at a slower rate than in the central city. Growing and declining areas, then, differ in the rate of growth and decline of each race in city and suburb, but are similar in the racial ratios implied: increasingly black school systems in the central cities, increasing proportions of blacks in the suburbs. Analysis of the data in two subperiods, 1968-72, and 1972-76, indicates an acceleration of these trends.

These preliminary findings, based upon a small sample, warrant a broader examination of trends in all of the largest school districts as well as in a sample of middle-size, small-town, and rural districts, where aggregate population growth has been more rapid in the 1970s. At a minimum, one would wish to examine black and white enrollment both in rural areas and small towns experiencing a population "turnaround"; i.e. a boom after a chronic period of decline. This would enable us to determine whether whites and blacks are fleeing entire metropolitan areas to middle-size cities and small towns. These questions are suggested by the findings of Coleman et al. (1975) and Farley and Wurdock (1976) that white flight from desegregation is less in smaller metropolitan areas, where presumably race relations are more manageable.

Nonpublic school enrollment

The National Catholic Education Association annually surveys all Catholic schools in America regarding enrollments by race. The aggregate data are published in a yearbook, Catholic Schools in America.

According to these data, there has been an absolute increase in the number of blacks enrolled in Catholic elementary and secondary schools in the 1970s. At the

Table 2. Changes in black, white, and total public elementary and secondary school enrollment, selected metropolitan areas, 1968-1976.

	% Change 68-72			% Change 72-76			% Change 68-76		
	Negro	White	Total	Negro	White	Total	Negro	White	Total
ATLANTA SMSA	+ 11.5	+ 0.6	+ 3.8	+ 10.9	- 6.3	- 1.0	+ 23.6	- 5.8	+ 2.8
City	+ 7.8	-49.0	-13.7	- 1.6	-57.5	-14.1	+ 6.0	-78.3	-25.9
Suburb	+ 28.6	+11.9	+13.5	+ 59.0	- 1.0	+ 4.6	+104.5	+10.9	+18.7
CLEVELAND SMSA	+ 0.4	- 3.1	- 1.8	- 11.0	-15.2	-13.6	- 10.6	-17.8	-15.2
City	- 3.8	-12.3	- 7.0	- 16.8	-21.0	-17.7	- 20.3	-30.7	-23.4
Suburb	+ 43.8	- 0.2	+ 1.8	+ 25.7	-13.6	-11.1	+ 80.7	-13.8	- 9.4
DALLAS SMSA	+ 25.4	+ 2.1	+ 9.2	+ 8.3	- 0.2	+ 4.3	+ 35.7	+ 1.9	+13.9
City	+ 21.1	-20.0	- 3.3	+ 8.8	-32.3	-10.1	+ 31.8	-45.9	-13.1
Suburb	+ 45.8	+18.7	+22.8	+ 6.0	+18.7	+16.6	+ 54.5	+37.5	+43.3
DENVER SMSA	+ 16.3	- 1.1	+ 3.7	+ 2.3	-14.6	- 9.7	+ 19.0	-15.6	- 6.4
City	+ 15.3	-15.7	- 5.1	- 1.2	-32.7	-18.4	+ 14.0	-43.3	-22.6
Suburb	+ 57.6	+11.7	+12.9	+107.1	- 2.7	- 0.0	+227.3	+ 8.7	+12.8
OKLAHOMA CITY SMSA	+ 6.9	- 7.8	+ 0.9	+ 1.4	-12.6	- 8.2	+ 8.4	-19.4	- 8.2
City	- 2.4	-27.8	-19.3	- 5.9	-30.6	-21.2	- 8.1	-49.9	-36.4
Suburb	+149.7	+ 8.9	+13.8	+ 44.9	- 2.7	+ 9.5	+261.9	+ 5.9	+14.9
WASHINGTON,DC SMSA	+ 10.4	+ 1.3	+ 3.3	+ 2.8	-13.1	- 4.9	+ 13.4	-11.9	- 1.9
City	- 3.9	-40.5	- 5.9	- 11.0	-10.9	-10.7	- 14.4	-46.4	-15.9
Suburb	+ 59.3	+ 2.1	+ 6.1	+ 31.3	-13.1	- 3.3	+109.2	-11.2	+ 2.6

Source: U S. Office of Civil Rights, Dept. of Health, Education and Welfare. Directory of Public Elementary and Secondary School Enrollment.

same time the enrollment of Spanish-Americans and Asian-Americans also increased, while white enrollment decreased. Consequently, the black share of Catholic elementary enrollment rose from 5 to 8 percent; secondary enrollment, from 4 to 6 percent, in this decade. The share of blacks in Catholic schools contrasts with their relatively low share in the Catholic population.

Enrollment data on independent and denominational private schools are less easily attainable. The National Association of Independent Schools, whose membership includes most nondenominational private schools, has compiled racial information since 1971. Unlike the Catholic school system, which has lost students in the 1970s, the independent schools have steadily gained. Black enrollment has more than kept pace with total independent school enrollment, rising from 3.7 percent to 4.2 percent in the past eight years.

Numerically, black enrollment in Catholic schools is almost 20 times greater than in independent schools. This suggests that deeper studies of black flight should focus upon the parochial schools as an escape valve.

II. UNDERSTANDING BLACK FLIGHT

The most useful starting point for understanding black flight comes from the conventional theory of urban economic development, which links the process of household residential choice at the micro level with changes in the urban economy at the macro level. According to this conceptual scheme, three classes of factors are important in driving black flight: changing characteristics of families, changing characteristics of neighborhoods, and changing characteristics of metropolitan areas.

Microanalysis of household choice

In deciding where to live, families attempt to maximize the satisfaction they receive from housing services. These services derive from the characteristics of the structure (shelter, space, comfort); the characteristics of the neighborhood (its location, social character, site amenities), and characteristics of municipal services (quality of schools, tax rates).

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Families place different weights upon these various structural, neighborhood, and municipal service characteristics, depending upon their situation in the life-cycle, income, and job location. Families with high income and school age children might place greater weight on school quality than low-income families without children. Translating this conception into economist's parlance, each representative family type has a utility function, which weighs the structural (S), neighborhood (N), municipal services (M), and other goods (X) which can be purchased with family income:

$$U_i = U_i (S,N,M,X)$$

Associated with each neighborhood is a set of costs: for housing, for local taxes, and for commuting to work. In addition, a household might wish to consider utilizing private schooling, which has an additional cost. This latter option may be preferred when school quality is low in an otherwise desirable neighborhood. Families then attempt to maximize their housing satisfaction subject to the constraints of income:

$$Y_i = p_j S + C_j + T_j + P + X,$$

where p_j are housing costs, C_j commuting costs, T_j taxes, in neighborhood j. Private school tuitions, P, are not closely linked to neighborhood. The price of other goods is assumed to equal one, so expenditures are simply X.

According to the urban economic model, a family observes an array of metropolitan neighborhoods and identifies that which would maximize its satisfaction, given its preferences and ability to pay. This does not mean that families are constantly searching, and always moving to a new neighborhood as soon as its circumstances change. Moving has its psychic and economic costs; however, when the discrepancy between the level of satisfaction obtained in an existing neighborhood falls sufficiently below that of the "optimal" neighborhood, moving is likely to occur. For migrating families, which are moving to new metropolitan areas for employment reasons, this inertia has already been overcome and it can be assumed that they will attempt to

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locate in their most favored neighborhood.

Because metropolitan areas grow in concentric rings, like the layers of an onion, neighborhoods maintain a relative stability of character in most respects, in particular the quality of the housing stock, access to jobs, and site amenities. Social and racial characteristics are less enduring, and change as a result of the housing choices described above. That is, as mobile families seek new housing, largely because of changes in their own circumstances (change in family size, in income, in job location, they may change the character of neighborhoods into which they move.

The chain by which changes in family circumstances can lead to changes in neighborhood circumstances is considered in the literature on filtration and tipping. According to the filtration model (Lowrey, 1960), families seek better and better housing as their circumstances improve over time. The highest income groups tend to purchase new houses on vacant land which reflects their tastes and standard of living rather than upgrading their current housing in site. The fact that relatively lower income groups are also seeking to upgrade their housing quality keeps up the demand for existing dwellings at the higher end of the quality spectrum. Given dwellings then filter down from high-income to lower-income groups, with the following consequences: 1) the best quality and newer housing tends to be situated further from the city center; 2) the quality of housing for each income group improves over time; and 3) at the same time the relative social status of given neighborhoods tend to decline with the influx of ever lower-income populations. To the extent that the lowest income populations are not replenished by impoverished immigrants, the demand for the poorest quality housing may be so low, that abandonment occurs, largely in the center.

According to the tipping model (Schelling, 1971 & 1972), when the influx of lower-status families reaches a critical point (usually far below 50 percent), the exodus of the higher-status families is precipitous. While the tipping notion has usually been applied to race, Schelling notes its applicability to groups which

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differ in age, income, or sex as well.

Macro-urban factors

Changes in metropolitan structure intensify these centrifugal tendencies. The improvement of intra-urban transportation reduces the barrier of space and permits families to acquire more spacious and cheaper housing in the periphery at the same commuting cost. The decentralization of jobs to the suburbs, furthermore, reduces the attraction of the central city as a locus of employment. Finally, the rapid immigration of low-income rural populations into metropolitan areas maintains the demand for low-quality inner-city housing. To the extent that tipping operates, the lower-income populations eject higher-income populations from the central cities.

This conventional model has considerable predictive power in explaining residential patterns and their changes over time for the white population. Even the urban poor have partaken of this process. The conventional model must be modified considerably to explain the back residential pattern of heavy segregation and concentration in the center city. Repeated studies have shown that these spatial patterns are inexplicable by the location of back employment or patterns of income (Taeuber and Taeuber, 1965; Zelder, 1970; Kain and Quigley, 1975; Farley, 1977). Obviously the residential choice of blacks has been highly constrained by discrimination, until recently backed by the power of the state (Orfield, 1974).

The impact of constraints on black freedom of choice

The fact that the residential choice of blacks has been highly constrained does not completely invalidate the conventional model. Like whites, blacks pay heed to neighborhood characteristics and personal circumstance in deciding where to live. Even within the severe housing constraints they faced, especially before the 1960s, the black population of cities has sorted itself out on the same dimensions as does the white population: life cycle, income, education, and occupation.

The interesting issues are: 1) how does social segregation within the black population compare to that within the white; 2) how much contact does black middle-

class have with black lower-class; 3) what are the trends in class segregation within the black population; and 4) to what extent are higher-class blacks more suburban?

III. THE GEOGRAPHY OF THE BLACK MIDDLE CLASS

There is considerable literary and journalistic evidence of the inability of the black middle-class to escape the debilitating effect of close contact with the underclass on its very safety much less on the maintenance of their norms and values (Coombs, 1974; Wilson, 1975). In the study of a small southern town in the 1930s, an anthropologist (Powdermaker, 1939, p. 13) noted:

> Across the tracks, where side by side live the respectable and the disreputable, the moderately well-to-do and the very poor, the pious and the unsaved, the college graduates and the illiterates...all thrown together because all are Negroes.

Erbe (1975) suggests that:

> The lack of residential segregation of social classes in the black community, in the sense of "contact probability" and the sharing of neighborhood facilities, may be one of the explanations for...the low degree of occupational inheritance between high-status black fathers and their sons and the high degree of intergenerational downward mobility of blacks compared to whites...

The low "heritability" of middle-class culture among blacks may result from peer pressures in the schools. This assertion is suggested by a comparison of the impact of schooling, family, and peers upon the reading achievement of blacks and whites. According to Coleman (1972), the percentage of variance in reading scores explained by these factors together is similar for blacks and whites, for several grades. There is a striking difference in the relative importance of family and peers between blacks and whites: Among whites, family attributes are considerably more important than peer attributes, while among blacks the contrary holds. Furthermore, parental socio-economic status has less impact on educational achievement, and eventual occupation and income, among blacks than among whites (Blau and Duncan, 1967; Duncan, 1967 & 1968a&b; Jencks, 1971; Duncan et al., 1972). The precariousness of the hard-won status of middle-class blacks would suggest that heroic efforts would be made to provide middle-class environments for their children. To what extent has this occurred?

Class segregation

There is substantial evidence that black and white populations are internally segregated residentially on the basis of socioeconomic status (Frazier, 1932; Duncan and Duncan, 1957; Taeuber and Taeuber, 1965). The most commonly used index of residential segregation is the index of dissimilarity, which varies from zero (complete integration) to 100 (complete segregation). The numerical value of the index represents the proportion of the black (or white) population that would have to be redistributed among census tracts or blocks in order to achieve the same residential pattern as whites (or blacks). Indices can be computed for different income, education, occupation gorups within and between ethnic groups. Generally, the greater the disparity of social class between subgroups within the black and white populations, the greater the index.

In a study of segregation within metropolitan New York in 1960, Kantrowitz (1973) found indices of dissimilarity of similar order of magnitude for whites and blacks. For example, among whites the index of dissimilarity between those earning less than $1000 and those earning over $10,000 was 42; for nonwhites, 48. The index of dissimilarity between those with 2-4 years of school completed and college graduates was 55 among whites; 53 among nonwhites. In metropolitan Milwaukee (Edwards, 1970) the magnitude of social class segregation was somewhat less than in New York: the index between those earning less than $1000 and those earning over $10,000 was 41 among whites, but only 35 among blacks. The lesser degree of segregation among blacks of different income levels in Milwaukee than in New York may reflect the former's smaller ghetto and hence lesser capacity to provide spatial distance between classes.

Studies of residential segregation in 1970s indicate the continuation of these patterns. The index between those with 1-4 years of school completed and college graduates was about equal (60) among whites and blacks in Detroit; slightly higher for whites than blacks (57 vs 53) in Chicago (Farley, 1977; Erbe, 1975). Farley (1977) computed indices of dissimilarity among education groups for blacks and whites in 29 of the largest metropolitan areas. The average index of dissimilarity among

education groups within a metropolitan area is roughly the same for blacks and whites. To take extreme examples, the average indices for whites and blacks in Houston are 29 and 16, respectively; in San Jose, 22 and 47. The average of these averages across all the metropolitan areas was nearly identical for whites and blacks--23. While the degree of social class segregation within the white population is remarkably similar from area to area (standard deviation of 2.3), the degree of class segregation among blacks varies widely (standard deviation of 6.5). Similar results followed from indices based on income and occupation.

Inter-class contact among blacks

The fact that blacks sort themselves out on similar dimensions as whites does not imply that the black middle-class has been as successful as the white middle-class in isolating itself from their lower-class counterparts. The degree of contact between middle- and lower-class subgroups depends upon their relative size as well as their index of dissimilarity. Given an identical index of dissimilarity in two cities, a middle-class subgroup has more contact with the lower-class subgroup when the latter comprise 50 percent of the population than when they comprise 10 percent.

This important proposition is illustrated by Erbe (1975). Within each tract, the probability of a rich man encountering a poor man is simply the proportion of the tract population that is poor. These probabilities can be averaged for the city as a whole, weighting by the proportion rich people living in each of the areas. The assymmetric intergroup contact (AIC) index equals:

$$AIC = \sum_{i}^{k} \frac{n_{ir}}{n_{.r}} \cdot \frac{n_{ip}}{n_{i.}}$$

where there are k tracts, where subscript r refers to the rich, and where subscript p refers to the poor.

In the two hypothetical cities, where the indices of dissimilarity between rich and poor are equally 50, the probability of rich encountering the poor differ substantially. Where the proportion poor is five times higher, the probability of such an encounter is five times higher (Table 3).

Table 3. Illustration of Index of Dissimilarity of 50 and Asymmetric Intergroup Contact of Rich and Poor in Two Hypothetical Cities (Percent)

a. Index of Dissimilarity

Subarea	City with 50% Poor		City with 10% Poor	
	Rich	Poor	Rich	Poor
A	10	40	10	40
B	30	20	30	20
C	50	10	50	10
D	10	30	10	30
Total %	100	100	100	100
(N)	1,000	1,000	1,000	1,000
Index of Dissimilarity	50		50	

b. Asymmetric Intergroup Contact

	City with 50% Poor				City with 10% Poor			
	% Rich	% Poor	% Total	(N)	% Rich	% Poor	% Total	(N)
A	20	80	100	500	69	31	100	260
B	60	40	100	500	93	7	100	580
C	83	17	100	600	98	2	100	920
D	25	75	100	400	69	31	100	240
Encounter Probability of Rich with Poor	.36				.07			

Evidence from Chicago indicates that middle-class blacks have considerably more contact with their lower-class counterparts than do their white counterparts (Erbe, 1975). For example, the average white college-educated male lives in a tract where 46 percent of the males have at least some college education; the corresponding figure for college-educated blacks is only 25 percent. Unfortunately no inter-city or temporal generalizations are possible, for lack of comparable studies.

Trends in black social class segregation and interclass contact

There is considerable evidence that the middle-class black population has continued to sort itself out from the lower-class population, especially after 1950. As measured by the index of dissimilarity, Taeuber and Taeuber (1969, Table C-2) found that professionals and managers became somewhat less segregated from laborers, service workers, and operatives in six southern and border cities in the 1940-1950 period. This may be ascribed to the tightness of housing market conditions facing the black population, for since that time the trend toward social class segregation has been marked. In the 1950-1960 period, they found that in ten cities (three northern, four border, three southern), the average indices of dissimilarity among eight major census occupational groups increased. Similar results hold when the residential distribution of all white collar occupations and all blue collar occupations are compared. An extension of the analysis to 10 large and medium cities in the 1960-1970 period indicates a continued separation of upper white collar and lower blue collar occupations (Simkus, 1978).

Trends in interclass contact within the black population has not been measured directly; however, some strong inferences can be made indirectly. Contact between middle- and lower-class blacks depends upon their respective shares in the black population and the indices of dissimilarities in their residential distribution. A rising share of blacks in middle-class occupations plus a rising index of dissimilarity between middle- and lower-class occupations implies a diminution in black middle-class contact with lower-class blacks.

Suburbanization.

The linkage between suburbanization and upward mobility among blacks is somewhat ambiguous. In a comprehensive analysis of 24 large metropolitan areas for 1960, Schnore (1965) found that the proportion of black families with incomes above $7000 tended to rise with distance from the downtown in northern and border cities. This is apparently a long-standing phenomenon, which was identified in Chicago in 1920, 1930, and 1950 (Frazier, 1932; Drake and Cayton, 1945; Duncan and Duncan, 1957). Roughly similar findings apply when middle-class status is measured by completion of high school or white collar occupation. In southern cities, Schnore found an inverted U pattern where "moving away from the center of the city, nonwhite areas show a rise in socioeconomic status, followed by a decline." By selecting sixteen different cities, including middle-sized ones, Marston (1969) found that black income rises with distance from the center. For the total metropolitan population nationally, Powers (1968) found that the socioeconomic status in the central cities to be similar to that in the suburbs for blacks, but lower in the cities than in the suburbs for whites. When metropolitan areas are broken down by size, black socioeconomic status was found to be slightly higher in the central city than in the suburban ring.

These ambiguities can be clarified by recognizing different types of black suburbanization, following Farley (1970). In the south, impoverished rural enclaves of blacks have become incorporated into metropolitan areas, becoming statistically suburban. In several metropolitan areas, such as Chicago, Cincinnati, Miami, Shreveport, and Dallas, developers have created exclusively black middle-class suburbs. More commonly, upwardly mobile blacks move into housing contiguous to the major black concentrations.

One indisputable finding is relatively high social status of the blacks who pioneer in expanding the black-white border in central cities and inner suburbs. With few exceptions Marston (1969) found that the occupation, income, and education of blacks in the "emerging" black areas of 16 cities exceed that in established black areas in 1960. Taeuber and Taeuber (1965, tables 51 & 52) observed a similar finding in 10 metropolitan areas in 1940, 1950, and 1960.

The reason that the relationship between distance from the center and black socioeconomic status is so tenuous is that the expansion of black ghettoes is not always in a centrifugal direction. In his classic study of Harlem in the 1930s, Frazier (1937) found that the upwardly mobile moved outward from the ghetto in all directions, including toward the "center" of the city on lower Manhattan. In other cases, emerging black areas fill in between larger concentrations of black population within the center.

In a detailed study of Philadelphia, Cottingham (1975) adds another dimension to black suburbanization by comparing intra-metropolitan movers and inter-metropolitan migrants in the 1965-1970 period. The likelihood of movers' selecting suburban locations is highly dependent upon 1965 residence. For those residing in the City of Philadelphia, 3.5 percent selected suburban residences; for the few already living in the suburbs, 90 percent. More interesting, 31.1 percent of inter-metropolitan migrants chose suburban residence. This suggests that the mechanism by which black suburbanization occurs is through differential selection of migrants rather than direct movement from the central city to the suburbs within the metropolitan area. In particular, nearly twice as many of Philadelphia's suburban black population in 1970 migrated from other areas as moved from the central city in the previous five years. It should be noted that suburban Philadelphia includes three older, industrial satellites--Camden, Chester, and Norristown--whose populations are socioeconomically much like those of central cities. Moreover, reverse movement from the suburbs to the central city nearly offset movement from the city to the suburbs, excluding the industrial satellites.

These black suburban selection rates are much lower than corresponding white rates, even when family income is taken into account. The suburban selection rate for central-city black movers earning more than $15 thousand was nearly 6 percent; for white movers, about 50 percent. For families earning less than $6 thousand, the suburban selection rates were 1.5 percent for blacks, 18 percent for whites. At each level of income, then white movers are about ten times more likely to choose suburban residences than

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blacks. Among inter-metropolitan migrants, the same income and race differences are found in likelihood of suburbanization.

Neighborhood composition and peer environment

The major medium through which neighborhood racial and class composition translates into peer environments is through the schools. Rhodes, Reiss and Duncan (1965) have shown that school children, like adults, tend to choose individuals of similar socio-economic background as friends. Because neighborhoods and their schools tend toward homogeneity, this is at first glance not surprising: One tends to choose friends from among those one encounters. The interesting question is whether school children's selection of friends is a random sample of children in their school or not. Rhodes et al. found that student choices were hardly random, but were biased toward children of similar background; however, the choice of friends also reflected the social mix in the school. In other words, while middle-class children tend to select middle-class friends, the availability of such potential friends in a school influences the actual likelihood of doing so.

In their examination of metropolitan Nashville, Rhodes et al. discovered that because of residential segregation, schools which blacks attended were much more heterogeneous socially than school whites attended. Because of the relative inavailability of peers of similar class, middle-class black children were less likely to select middle-class friends than were their white counterparts. Consequently, given similar desires to homogeneity of friendship networks, middle-class black children have less opportunity than whites for attaining the support of middle-class peers. Given the correlation between race and class existing in American society, it is not surprising that the most educated blacks are the least willing to live in all-black neighborhoods (Schuman and Hatchett, 1974).

Black preferences for neighborhood quality

The evidence indicates a strong tendency for the black middle-class to segregate itself from the lower-class, largely through movement toward the periphery of the

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black ghetto and increasingly toward the suburbs. Social class is but one neighborhood characteristic that whites take into consideration in choosing where to live, and there is no reason to believe that blacks behave differently. These other neighborhood characteristics can be identified by interviews, marketing techniques, or revealed moving behavior.

Interview techniques. Several researchers have asked respondents about the importance of neighborhood characteristics like race, class, and crime on moving intentions. McAllister et al. (1971) undertook a three-year panel study of black and white households that permitted an identification of movers. While socioeconomic influences (such as age, education, family size) on the likelihood of moving were identified, no firm inferences could be drawn about the influence of characteristics of either origin or destination neighborhood. In giving reasons for moving, blacks were more likely to indicate that they were "forced to move" (21 vs 6%) by virtue of eviction or demolition; that they were "seeking a better place" (1[illegible] vs 10%); that their move was "cost-related" (11 vs. 8%). About six percent of both white and black movers gave "other neighborhood related reasons."

In a more informative study, Kasl and Harburg (1972) interviewed 100 adults about their perceptions of neighborhood. One-half of the respondents lived in areas characterized by low socioeconomic level and high "social disorganization" i.e., areas of high "stress." They found that living in high stress areas has a strong influence on their perception of the neighborhood as unsafe, criticisms of neighborhood facilities, dislike of neighborhood, and desire to move out. Blacks had more negative perceptions of high stress neighborhoods than whites.

The validity of attitude surveys as predictor of behavior is suspect. Droettboom et al. (1971) undertook a three-year panel study in which perceptions of neighborhood at the beginning could be compared to mobility status at the end. They tested the following hypotheses: 1) those who perceive considerable amounts of crime and violence as a serious problem in their current neighborhood are more

likely to move out; 2) moves associated with the perception of crime and violence are most likely to be toward the suburbs; and 3) the effect of crime and violence is stronger for high-income and white families than for low-income and black families. While perceived seriousness of crime was highly correlated with overall dissatisfaction with neighborhood, desire to move, and plans to move in 1966, this perception barely correlated with actual mobility behavior in the following three years. Those perceiving crime as a very serious problem were no more likely to move outside the neighborhood than those who perceived crime as not serious (20.9 vs. 21.3). Moreover, those central city residents who perceived crime as a serious problem were less likely to relocate to the suburbs than those who perceived as crime as not serious (7.5 vs. 13.1).

Of greatest relevance to the present study is the interaction between race and income, perception of crime, and mobility. With few exceptions, the association between dissatisfaction, desire to move, plan to move, and actual mobility is stronger for low income respondents than for high income ones and for blacks than for whites. This may not be surprising since the black and the poor are the segment of the population most likely to be victimized. These results suggest that black lower-class flight from crime may be a formidable factor influencing population redistribution within the central city.

Marketing techniques. The attitude surveys reviewed above are inadequate tools for assessing preferences or predicting behavior because they do not clearly specify choices or constraints on choice. An expression of "dissatisfaction" with one's neighborhood does not indicate how likely an individual is to purchase in a more expensive neighborhood with less crime but poorer job accessibility. Clearly, both the range of alternatives and their costs must be presented to a respondent in order to make any inferences about effective demand for alternative neighborhoods.

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Techniques for unravelling the determinants of choice among multi-dimensional bundles have been developed in the field of marketing. One standard technique--called "conjoint measurement"--involves asking the respondent to rate on an ordinal scale (say, 1 to 4) a product that is characterized by several dimensions. New bundles are composed by the researcher and rated by the respondent. Canonical correlation analysis of these ratings and characteristics identify the weights respondents place on each level of each dimension. Reliability of response and predictive validity are then calculable.

Marketing techniques have not been widely used in assessing housing preferences or demand for public services. Nicosia and Wind (1977) present an agenda for such research, which could be applied to the housing preferences of the black middle-class.

Revealed preference. Neither the demographic studies of suburbanization nor the survey literature identifies with any prevision those neighborhood factors which blacks consider in choosing a residence, much less the weights attributed to these factors. While there have been several studies of the effect of neighborhood attributes on destinations of white movers, reviewed in Katzman (1978a, chap. 6), there are none which consider choices of black families.

What follows is the first attempt to do so, using the black population of Dallas County as the target group.

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IV. BLACK MOVING BEHAVIOR, 1965-1970: A DALLAS PILOT STUDY

Studies of residential mobility are especially difficult because the appropriate data are not normally generated by statistical agencies. Most of the previous studies have been based upon special surveys undertaken for purposes of transportation forecasting, which lack sufficient information about either households or neighborhood characteristics. The pilot study described here is based upon a special tabulation of the 1970 Census for Dallas County, Texas, that identifies destinations and characteristics of movers and migrants during the 1965-1970 period.

Methodological issues

Data. A special tabulation of individual records was compiled by the User Services Division of the U.S. Census Bureau for Dallas County. The objective of this tabulation was to identify the social characteristics of families that moved or migrated to various neighborhoods in Dallas County in the 1965-1970 period.

Neighborhoods were created as composites of census tracts, subject to the confidentiality constraint that each contained at least four tracts or 3500 household heads. Forty-four neighborhoods were thus created: twenty-five within the City of Dallas were identical to the homogeneous "Statistical Community Areas," created by its planning agency; twenty drawn from suburban municipalities and school districts.

Again, in order to preserve confidentiality of the individual respondents, only nine household characteristics were divulged. Based upon previous studies of mobility, which emphasized life-cycle factors, and studies of determinants of housing choice, we selected the dimensions and levels indicated in Table 4. If any neighborhood has an estimated 33 or fewer households in the white or non-white category, the characteristics of the household head in that particular group was suppressed. This last confidentiality constraint does not hinder our enumerating the blacks who pioneer in neighborhoods far from established Negro areas, but does obscure their social characteristics.

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Table 4. Household Characteristics, Dallas County: Thousands of families, 1970.

A. Race
- White.....365
- Non-White..... 64

B. Age of Head
- Under 25..... 42
- 25-34.....105
- 35-64.....229
- 65+..... 54

C. Sex of Head
- Male.....340
- Female..... 89

D. Tenure
- Owner Occupied.....256
- Renter Occupied.....173

E. Residence 5 years Ago
- Same House - Inside Dallas.....118
- Different House - Inside Dallas..... 94
- Balance of Dallas County..... 95
- Elsewhere.....123

F. Household Income
- Under $6,000.....123
- $6,000 - $9,999.....105
- $10,000 - $14,999.....106
- $15,000+..... 94

G. Place of Work - Primary Worker in Household (i.e., worker with highest earnings)
- Dallas City - CBD..... 43
- Remainder of Dallas City.....220
- University Park City..... 3
- Garland Town..... 14
- Irving City..... 11
- Mesquite City..... 4
- Grand Prairie City (part)..... 9
- Remainder of Dallas County..... 26
- Elsewhere..... 16
- Not reported..... 23

H. Number of Workers
- None..... 57
- One.....210
- Two.....163

I. Number of Children Enrolled by Type of School
- None.....267
- One or two, public.....105
- One or two, private..... 12
- Three or more, public..... 41
- Three or more, private..... 5

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The census data was thus presented as counts within a multiway table of ten dimensions (one neighborhood, nine social characteristics) and over three-million cells (44 x 76,800 = 3,379,200). With only 429 thousand families in Dallas County, the use of all the available information leaves the majority of the cells empty and the various family types spread rather thinly.

Discriminant analysis. To reduce the empirical work to more manageable proportions, a discriminant analysis identifies those family characteristics most important in distinguishing families that choose different neighborhoods. For example, the literature on social ecology indicates that families are segregated on the basis of socioeconomic status (education, occupation, income), life cycle, ethnicity, tenure status, and workplace. Previous analysis of the Wilmington, Delaware SMSA indicated that 1965 residence (mover-migrant), race, and age of head were the most important discriminating variables (Katzman, 1978, Table 6).

Discriminant analysis weights the classificatory variables so that the ratio of between group-to-within group sum of squares, expressed in an F-ratio, is maximized. The groups in the case at hand are the 44 neighborhoods across which families are distributed. The importance of a particular classificatory variable is proportional to the change in the F-statistic were it removed. The Wilk's lambda indicates the ratio of within group to total variance among families; the smaller the lambda, the more homogeneous the groups. Canonical correlations provide a final measure of goodness-of-fit.

Because of limitations in the computer tape, analyses were performed for families separately classified by number of workers (1 or 2) and number of children (none, some). Because race is so obviously important, families were additionally stratified by this variable prior to the discriminant analysis.

Table 5. Discriminant analysis of Dallas County families: F-statistic to remove

Variable	white				nonwhite			
	one worker		two workers		one worker		two workers	
	kids	none	kids	none	kids	none	kids	none
income (4 values)	274	245	97	91	43	46	38	32
residence (mover/migrant)	104	134	98	79	17	14	14	10
sex of head	38	84	19	46	13	6	14	9
age of head (4 values)	25	37	27	30	8	11	6	9
Wilks lambda	.60	.73	.68	.78	.66	.78	.84	.78
Canonical r (first)	.53	.39	.43	.30	.45	.38	.44	.35
n	33,172	65,298	25,824	41,739	5,759	9,992	5,323	7,765

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By far, income is the most important variable separating families among neighborhoods. Residence in 1965 for the mobile population (movers-migrants), age of head, and sex of head have rather inconsistent and modest discriminatory value (Table 5). The high value of the Wilk's lambda suggests that neighborhoods are rather heterogeneous on these four variables.

Taking the various combinations of race (2 levels) and income (2 or 3 levels), we are able to extract five representative family types that comprise about 70 percent of the families in the county. The effect of number of workers and number of children can then be examined for these representative family types through interaction terms. That is, the analysis of neighborhood choice can include these two respondent characteristics as well as the neighborhood characteristics, the response variables.

Neighborhood characteristics

The dimensions upon which households make choices among neighborhoods are selected from the various studies of attitudes towards neighborhoods, moving behavior, housing prices, and white flight (Katzman, 1978a). For analytical purposes each neighborhood dimension must be broken into several categories. Aigner, Goldberger, and Kalton (1975) have shown that under rather general conditions, the information loss in categorizing an underlying continuous variable is rather small: 4-8 percent when there are five categories; 6-12 percent when there are only four.

The neighborhood variables are categorized by a standard hierarchical clustering program, whose results were modified judgmentally in the direction of equalizing the size of clusters. The algorithm selected four or five clusters for the following neighborhood dimensions:

1. Journey to work: Distance of neighborhood from workplace can be estimated by the distance between the center of a neighborhood and the center of the workplace. For workplaces which are reported as rings (non-CBD Dallas, rest of Dallas County), distance is taken from the center of a neighborhood to its tangent to an imaginary circle midway between inner and outer circumferences of the employment ring. The assumption underlying this measure is that households working in, say, the northern portion of an employment ring are likely to locate in a northern neighborhood. Dis-

tance between workplace takes five values: < 2 mi./ 2-3 mi./ 3-4 mi./ 4.5-6 mi./> 6 mi.

2. Tax rates. Tax rates in Dallas County neighborhoods are difficult to compute because of the multiplicity of assessing and taxing jurisdictions. A given property might be assessed at different values by the municipality, the school district, and the county. To facilitate comparison of tax rates across neighborhoods, tax bills as a percent of asking price were computed for a sample of homes. Samples of approximately 15 homes in each neighborhood were drawn from the Multiple Listing Service book for the week of July 15, 1977. While this accounting period is nearly a decade after the observed moving behavior, it was assumed that relative tax rates among neighborhoods did not change drastically in the interim. The four tax rate categories are: < $19/$19-$39/$39-$49/>$49 per thousand.

3. Crime rates. Crimes against persons and property were aggregated for all beats in the City of Dallas from the annual report of the police department for 1970. Crimes for suburbs were taken from the FBI Uniform Crime Report. Crimes against persons were so highly correlated with other socio-economic variables that they can be viewed as another measure of social class. Crimes against property were selected as providing more information about neighborhood quality. The four property crime rate categories are: < 30 [illegible] 50-70/>70 per thousand population.

4. Neighborhood race. The racial composition of neighborhoods was examined in both 1960 and 1970 to obtain a sense of racial dynamics, as suggested by Taeuber and Taeuber (1965). Of the 44 neighborhoods, 28 were "established white areas," with a population of over 95 percent white in both years. Eight neighborhoods were areas of invasion-succession where the white population declines and black population grew in the 1960's. Areas of invasion and succession all had less than 60 percent white population by 1970. In the intermediate category are four neighborhoods where white population growth outstrips black (areas of displacement) and four where black population growth outstrips white (growing areas) Because there were few neighborhoods where there was a decided change in racial composition (or "tipping"), neighborhoods were categorized by the proportion and educational level of their black populations in 1970. The five categories

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are: less than 5 percent black; 5-40 percent black and less than 37 percent blacks completed high school; 5-40 percent black and more than 37 percent blacks completed high school; over 40 percent black and less than 37 blacks completed high school; and over 40 percent black and more than 37 percent blacks completed high school.

5. Housing availability. Two components of housing availability are new construction and turnover of existing units. These can be approximated by the ratio of population not living in the same house in 1965 to total population, times the number of 1970 housing units. The four available categories are: < 4000/4000-6300/6300-9000/> 9000 units.

6. Social class. Indicators of occupation, education, and income are so highly correlated, that any of the three is an adequate representative of social class. Percent of the male labor force in white collar occupations is divided into five categories: < 10%/10-28%/28-49%/49-70%/> 70%.

7. Housing price. Influences on housing price are structural (newness, number of rooms), accessibility (distance from downtown), and neighborhood. A hedonic price index is obtained by regressing housing price against a list of these factors. When housing price is regressed against structural and accessibility characteristics of neighborhoods alone, the regression coefficients for this poorly specified equation apparently pick up neighborhood effects; moreover, the coefficient of determination is much lower (Table 6). To correct for structural characteristics, the neighborhood values for median rooms, newness, and distance, weighted by the regression coefficients of specification A, are subtracted from actual housing prices. These residuals, which reflect known neighborhood characteristics plus error, represent discounts or premia that are paid to live in a given neighborhood. The four housing price residuals are: > $3000 discount/$0-$3000 discount/$0-$5000 premium/> $5000 premium.

Table 6. Hedonic housing price indices, Dallas County, 1970: regression coefficients, n=44

variable	A	B	C
Median rooms	3988*	2968*	8361*
% built since 1965	128*	116*	252*
distance from center	-537*	-521*	-1205*
% white collar	237*	274*	--
% black	15	22	--
tax rate	-516*	--	--
constant	-6103	-8764	-21549
R^2	.89	.89	.68

*significant .05 (one-tail)

Theoretical assumptions. As discussed above, the utility of a particular housing site depends upon structural and neighborhood characteristics. In estimating the impact of neighborhood characteristics on residential choice, three assumptions are crucial. First, households choose sites with maximal perceived utility. Second, utility functions are stochastic due to misinformation or unmeasured individual taste differences. Together these assumptions imply that a given family ideal-type will not be concentrated in a single optimal neighborhood. Third, the odds of a particular family ideal-type choosing a neighborhood is proportional to the ratio of their perceived utilities.

For a given family, this model can be expressed as:

$$(1)\quad U_j = X_j^{\alpha} Y_j^{\beta} Z_j^{\gamma} u$$

for three characteristics of neighborhood j. Set the levels of X, Y, and Z in two neighborhoods and transform into natural logs:

$$(2)\quad \log U_1 = \alpha \log X_1 + \beta \log Y_1 + \gamma \log Z_1 + \log u$$

$$\log U_2 = \alpha \log X_2 + \beta \log Y_2 + \gamma \log Z_2 + \log u$$

The odds of selecting neighborhood one over neighborhood two (M_1/M_2) are proportional to their utilities, so that the log odds are proportional to the log utilities:

$$(3)\quad \log (M_1/M_2) = \frac{\alpha \log X_1 + \beta \log Y_1 + \gamma \log Z_1}{\alpha \log X_2 + \beta \log Y_2 + \gamma \log Z_2}$$

Since neighborhood characteristics are discrete, it is meaningful to translate the terms of the utilities into new parameters that reflect these discrete levels; e.g., $\alpha \log X_1 = a_1$:

$$(4)\quad \log M_1 - \log M_2 = a_1 + b_1 + c_1 - a_2 - b_2 - c_2$$

The actual frequency with which a neighborhood is chosen (M_1 or M_2) depends upon a scale factor which cancels out when the ratio of the two is taken. This scale factor reflects the number of choosers in the system. The frequency can be expressed as

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the sum of this scale factor (or the main effect, λ) plus the sum of the effects of the various parameters:

$$(5) \quad \log M_j = \lambda + a_j + b_j + c_j$$

Data relating family choices to neighborhood characteristics can be expressed in a multi-way contingency table. Each dimension of the table is a characteristic and each neighborhood comprises one cell in this table. The number of families choosing a particular neighborhood is the frequency in that cell. Not all cells are necessarily filled first, because a neighborhood representing a particular configuration of characteristics may not exist; i.e., the cell is filled with a structural zero. For example, in Dallas there are no neighborhoods with a high level of whiteness, poor schools, and low housing availability. Second, an existing neighborhood may not have been chosen by any members of a particular stratum.

LOGLIN 1.0, a computer program for estimating the parameters of incomplete multi-way tables, has been developed by Donald C. Oliver and Raymond K. Neff. This program provides estimates of the parameters generating observed frequencies as well as two measures of goodness of fit. Since standard errors of estimation are not available from this program, tests of significance are not presented here.

Readers unfamiliar with discrete multivariate analysis should note that a negative coefficient for a particular level of a variable implies that the cell frequency is fewer than expected on the basis of random assignment, and that a positive coefficient implies the frequency is greater than expected. The sum of the coefficients for any variable is zero, so that if one level of a variable attracts households, another must repel.

Two goodness-of-fit measures are the likelihood ratio (G^2) and Pearson's Chi-square (X^2), which have similar distributions. When the number of observations per cell is high (say, above 10), minor deviations of observations from the fitted model usually result in significant G^2 or X^2 statistics. To normalize for comparison among models, Bishop, Fienberg, and Holland (1975, Chap. 4) suggest computing X^2/n.

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In the case of black families, it is unreasonable to assume that there is free choice among neighborhoods. On the other hand, the concept of a black "ghetto" implies an ironclad restriction on where blacks can live. To compromise between these two extremes, we consider as viable residential options those neighborhoods in which at least one percent and 33 families of the population was black in 1970 and to which at least some blacks actually did move in the 1965-1970 period. This reduces the potential destinations for blacks from 44 to 25.

Preliminary analysis

In a preliminary analysis, several neighborhood characteristics are dichtomized instead of broken into the maximum number of levels indicated above. The following dividing lines are used:

Property crime rate	<30 per thousand/>30 per thousand
Tax rate	<$11 per thousand/>$11 per thousand
Availability	<6500 units/>6500 units
Housing price	<$1000 premium/>$1000 premium
Social class	<33% white collar/34-50% white collar/>51% white collar
Journey to work	<3 mi./>3 mi.

The upper-middle class

Families in the second quartile of the Dallas County income distribution are examined to compare the white and black middle class. This quartile contains more than a fourth of the white families and less than a fourth of the black families, who are heavily concentrated in the bottom of the income distribution. While among whites the number of one worker families is nearly identical to the number of two worker families, among blacks two worker families outnumber one worker families by four-to-one. This indicates that in 1970 few black families could achieve upper-middle income status with only one member in the labor force.

A comparison of the X^2/n statistics in Table 7 indicates that the hypothesized variables better fit white behavior than that of blacks, whether one assumes a freedom-of-choice or ghetto model. Among whites, the fit for all four family types is nearly identical, while for blacks there is substantial variation in fit.

White families. With few exceptions, the coefficients for families with or without school-age children and one or two workers are quite similar. This suggests that the four family types can be combined in a single analysis, as undertaken below.

Whites are most attracted to neighborhoods with low percentages of blacks. Although there is some attraction to neighborhoods with moderate proportions of blacks, the attraction is greater when the blacks are of higher social status. Areas of high black concentrations are unattractive, especially those where the blacks are of higher social status. This latter result is somewhat puzzling if one adheres to the hypothesis that much of racial discrimination against blacks reduces to class discrimination.

Upper-middle income whites are repelled by areas of low occupational status, and highly attracted to areas of moderate occupational status. This could be explained by the desire to move to areas where families are of equal or higher status.

Table 7. Determinants of Neighborhood Choice: Upper-middle Income, Age of Head 25-65, Dallas County, 1965-70.

	WHITES				NONWHITES(freedom of choice model)				NONWHITES(ghetto model)			
	ONE WORKER		TWO WORKERS		ONE WORKER		TWO WORKERS		ONE WORKER		TWO WORKERS	
	KIDS	NONE	KIDS	NONE	KIDS	NONE	KIDS	NONE	KIDS	NONE	KIDS	NONE
NEGRO												
LO	.84	.76	.73	.80	-1.55	-.90	-1.63	-2.84	-.75	.04	-.46	-1.76
MOD/LO	.41	.45	.01	.05	-.65	-.83	-2.07	-.91	-.87	-1.19	-2.59	-1.32
MOD/HI	.47	.39	.51	.73	-2.36	-.51	1.75	-.31	-2.04	-.11	2.31	-.04
HI/LO	-.09	.19	-.00	-.07	1.38	-.30	-.28	1.07	.87	-.67	-.74	.59
HI/HI	-1.62	-1.79	-1.24	-1.51	3.19	2.54	2.23	2.99	2.78	1.93	1.48	2.53
PCT. W.C.												
LO	-.56	-.57	-.43	-.33	-.04	1.10	1.43	1.81	.73	1.76	2.20	2.28
MED	.36	.35	.31	.54	-1.49	-.49	-.26	-.90	-1.25	-.38	.01	-.70
HI	.20	.22	.12	-.21	1.54	-.62	-1.18	-.91	.52	-1.37	-2.21	-1.58
PRICE LO	-.04	.05	-.31	.09	.19	.09	-.52	1.19	.49	.29	-.32	1.30
AVAIL. LO	-.01	.21	.08	.08	.15	1.02	.95	.97	.39	.98	.84	2.05
TAX LO	-.24	-.06	-.20	.18	-.48	-.41	-.43	-.69	-.57	-.56	-.55	-.74
CRIME LO	.27	.10	.24	-.03	.32	.22	.51	.54	.55	.38	.68	.66
DISTANCE LO	1.10	1.17	1.11	1.00	.87	1.40	1.10	1.00	.87	1.40	1.08	1.00
Likelihood	2447	2922	2715	3898	260	299	769	640	208	199	553	553
n	6916	9139	7773	8617	242	416	1300	1218	242	416	1300	1218
X^2/n	.37	.33	.35	.44	1.79	.75	.80	1.08	1.54	.45	.68	.55

Neither price nor availability appear to have a major impact on neighborhood choice of whites. Families with children appear to be slightly repelled by low price areas; families without, attracted. Perhaps families with children have greater concern for peer environments and correctly perceive that higher priced housing provides neighbors of higher social class.

White families appear to be repelled by low tax neighborhoods. This may be because low taxes are associated with low service levels, which are not measured directly. Families with children are more highly repelled by such neighborhoods than those without children, probably for the same reasons.

White families are attracted to low crime neighborhoods, with the exception of two worker families without children. Families with children appear to be more attracted to low crime neighborhoods than families without.

White families are consistently and strongly attracted to neighborhoods close to the workplace. This result is consistent with the massive literature on urban rents and land use, requiring no further comment.

Black families. An overall comparison of the freedom-of-choice and ghetto models reveals relatively little difference, although the latter has a better goodness-of-fit. This suggests that 1) neighborhoods from which blacks were excluded in 1956-70 were generally unattractive to blacks, but 2) middle-class blacks chose neighborhoods from less than the full range available.

Blacks were most attracted to neighborhoods of high black proportions. Except for the anomalous case of one worker families with children, blacks preferred neighborhoods where blacks were of higher social status.

There are differences among family types in the attractiveness of areas of generally high social class. One worker families with children are most attracted to such neighborhoods, while all others are repelled. This may be explicable in terms of the desire of middle-class blacks with children to provide a middle-class environment in their neighborhood. Since this involves paying a premium for housing, such

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neighborhood. Since this involves paying a premium for housing, such neighborhoods are of less advantage to families without children. Two worker black families may be attracted to low white collar neighborhoods because they themselves may be of lower occupational status, albeit of high income due to the pooling of two or more incomes.

Black families appear to move into neighborhoods of low housing availability, as indicated by new construction and turnover. This may be interpreted as an attraction toward stable neighborhoods, where there is little transiency.

As among most of the white family types, blacks avoid low-tax neighborhoods, and seek low crime neighborhoods, accessible to their work place.

Interaction models. The similarity of coefficients for the four white family types suggests the possibility of combining. Although the four black family types generated apparently more diverse sets of coefficients, they were similarly combined.

One method of combination is to expand the seven-way table of neighborhood characteristics by another two dimensions to reflect number of children and number of workers. The parameters of this new matrix are estimated by assuming no interaction between respondent and neighborhood characteristics (Table 8, line 2) and, alternatively, pairwise interaction between each of the two respondent characteristics (Table 8, line 3). The likelihood ratios and degrees of freedom from the two combined matrices are compared to those obtained by summing over the four separate models from Table 7.

For white families the interactive model has a significantly lower likelihood ratio, and hence a better fit, than the composite model without interactions. The differences in degrees of freedom are 22, with a corresponding difference in G^2 of 1873. This indicates that the number of workers and number of children does significantly affect the value white families place on neighborhood characteristics. The similarities among white families, however, are rather great. Combining the four white family types in an interactive model results in a better fit, with more degrees

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Table 8. Determinants of Neighborhood Choice: Upper-middle income; alternative models.

	WHITES		NONWHITES(free choice)		NONWHITES(ghetto)	
	G^2	d.f.	G^2	d.f.	G^2	d.f.
1. Sum of four models from Table 7	11,982	192	1,968	192	1,512	144
2. Composite model, no interaction	13,100	226	1,555	226	2,058	178
3. Two-way interaction/children, workers	11,227	204	1,241	204	1,749	156

of freedom, than the sum of the four separate estimates.

As before, the ghetto models fit the moving behavior of black families better than freedom-of-choice models. As with white families, the interaction model fits better than the composite model which does not take into account respondent characteristics. Unlike the case for white families, separate models for the four black families collectively fit better than a composite model with interaction. This suggests that for blacks, family income alone is a poor indicator of predictor of the attractiveness of neighborhood characteristics and that the number of workers and of children significantly influence the type of neighborhoods that are preferable.

Finally, black and white families are combined by: 1) pooling the eight likelihood ratios and degrees of freedom for Table 7; 2) pooling all family types in a model without any interaction effects; 3) pooling all family types with pairwise interaction effects between workers or children and each neighborhood head effect, but no racial interactions; and 4) pooling all family types with three-way interactions between race x workers/(or children) x neighborhood characteristic.

The second and third mode of pooling, which take no account of the race of the respondent, generate likelihood ratios three times higher than the sum of the likelihood from the eight models estimated separately. This suggests that differences between blacks and whites in the weights they place on neighborhood characteristics, are extremely significant. Black and white families differ mainly in the different weights they place on neighborhood race, although they also differ on weights placed upon some other neighborhood characteristics. The importance of the race of the chooser is indicated by the likelihood of the final mode of pooling.

The analyses above were replicated by partitioning neighborhood characteristics into four or five levels. Because of the paucity of neighborhoods into which blacks moved, the degrees of freedom in this expanded table were few; moreover, the separability of the table prohibited estimation of parameters for many levels of the variable.

V. IMPLICATIONS FOR WHITE FLIGHT AND BLACK FLIGHT

What are the implications of this study of moving behavior in Dallas County in the late 1960s? Dallas was neither a typical American city, or even a typica Sun-belt city, during this period: its black population was relatively impoverished and exceptionally segrega ed, both of which reflected the relatively harsh discrimination in the labor and housing market. Because of these conditions facing the black population during this period, the inferences drawn from this study perhaps generate biased forecast about the directions of black flight in the 1970s and 1980s, when both labor and housing market discrimination are likely less.

One's confidence in drawing implications from this pilot study are strengthened by their congruence with earlier studies of black residential change, studies of white flight, and journalistic reports.

The strongest inference to be drawn is that like their white counterparts, middle-class blacks select residential neighborhoods that are oriented to their place of work. This finding suggests that with the continued suburbanization of jobs, rise of family incomes, and decrease in job discrimination, middle-class blacks will follow whites to the periphery of metropolitan areas. Since the current stock of black population is so highly centralized, the catching-up proce. - should result in extraordinarily rapid flows in the next decade. The rapid suburban flow in the 1975-77 period is merely a premonition of what is to come.

A second major influence on neighborhood choice is race. Not surprisingly whites are strongly repelled by neighborhoods with black populations over 40 percent, although moderately attracted to neighborhoods with 5-40 percent black. In such integrated neighborhoods, whites prefer those with higher percentages of well-educated black neighbors. While the most preferred neighborhoods among whites are less than 5 percent black. whites will move into integrated neighborhoods where the blacks are perceived as middle class.

On their part, blacks are repelled by predominantly white neighborhoods and attracted to predominantly black neighborhoods. Interestingly, blacks are much less attracted to integrated neighborhoods (5-40 percent black) than are whites; in fact, blacks tended to avoid such neighborhoods in Dallas. If projectable, these preference patterns do not bode well for the future of integrated neighborhoods in Dallas. Instead of resulting in a dispersal of black population throughout the suburbs, black flight is likely to result in the creation of middle-class black enclaves in white suburbs, reminiscent of ethnic neighborhoods elsewhere.

Are these results generalizable to other metropolitan areas and to the future? Might black preference in Dallas during the 1960s merely reflect the unwillingless of blacks to expose themselves to real or imagined harrassment in more prejudiced times? Might not the suburbanization process itself in the interim have provided both whites and blacks with greater opportunities for positive interracial contact? Casual evidence from Washingdon, D.C., with its large middle-class black population, reinforces some of the conslusions drawn from Dallas; i.e. that black suburbanization results not in the dispersal of the black population but the creation of black suburbs.

This conclusion, if correct, is not necessarily cause for alarm. While a color-blind society might be desirable in some broader social sense, middle-class blacks can achieve for their families important benefits that middle-class whites have enjoyed; i.e. the safety and support of a middle-class milieu, and superior access to emerging suburban jobs, while maintaining a sense of ethnic community. These positive benefits for middle-class blacks cannot be minimized.

And what of the blacks left behind in the central cities, particularly the poor and the elderly? Does not black middle-class flight result in"creaming" the black population of its most ambitious, its best educated, its leadership? It is not clear why middle-class blacks must bear a special burden for lower-class blacks, which middle-class whites have not borne. To ask blacks who have a most tenuous hold on

middle-class status to sacrifice the well being of their families for some dubious benefit for those left behind is to impose a higher standard of morality upon the black middle class than upon their white counterparts. Creaming may even have positive effects on those left behind. First, it reinforces the notion that geographical escape from the ghetto is possible, which may have important motivating effect on those left behind. Second, the process of filtration may apply to leadership positions within the black ethnic community. In other words, the egress of the middle class from positions of political and business leadership may open upon positions for other upwardly mobile blacks.

VI. IMPLICATIONS FOR FURTHER RESEARCH

This pilot study of black and white mobility in Dallas County during 1965-1970 suggests several directions for elaboration:

1. Better measures of neighborhood quality might be obtained. Originally, our aim was to obtain indicators of the quality of schools and other neighborhood services on the basis of published records and surveys. No comprehensive data on school quality were available for the county and survey results proved unreliable. While school quality may be the most important aspect of neighborhood quality for upper-middle class family with children, its close relationship to neighborhood social class (Coleman, 1972) makes school measures somewhat redundant. Nevertheless, other aspects of neighborhood quality, such as air quality, are worth exploring.

2. The results for Dallas should be validated in other cities. A parallel study of Cuyahoga County (greater Cleveland) by Segal (1978) generates somewhat different, although not strictly comparable, results. Segal found similar effects for neighborhood distance, race, and crime. His study had direct measures of school quality, but no measure of social class; nevertheless, the effects of the two appear to be in the same direction as here. His price effect is consistently in the predicted direction, the price elasticity being negative. The discrepancies in sign and magnitude between Cleveland and Dallas suggest that extending this type of research to other metropolitan areas would be valuable.

3. The analysis could be extended to other ethnic groups. In particular, the white population could profitably dichotmized into Anglo and Hispanic in the Southwestern cities. In addition, the analysis should be extended to other income groups to identify income-elasticities of demand for various neighborhood attributes.

4. The dynamics of metropolitan change could be simulated on the basis of the extended results. The coefficients derived here identify changes in population distribution by family type within a metropolitan area. The sum of individual mobility decisions themselves change the character of neighborhoods such that the array of neighborhood characteristics differs in the next round of moving decisions, ad infinitum. Given the original array of neighborhood characteristics, distribution of mobile families across various characteristics (income, race, workers, children), and their corresponding utility functions, the changes in neighborhood characteristics between 1970 and 1980 might be simulated and validated by the 1980 census.

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